

Report to:

**U.S. EPA**

Under Assistance Agreement CX825906-01-0

**ESTABLISHMENT OF SMOKE OPACITY  
CUTPOINTS FOR SAE J1667  
TEST PROCEDURE**

Submitted by:

**SAE International**

Cooperative Research Program

November 1998

**ESTABLISHMENT OF SMOKE OPACITY  
CUTPOINTS FOR SAE J1667  
TEST PROCEDURE**

Submitted by:

SAE International  
Cooperative Research Program  
Gary W. Pollak, Program Manager

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## **EXECUTIVE SUMMARY**

## **EXECUTIVE SUMMARY**

SAE proposed to assist the EPA in determining the appropriate smoke opacity cutpoints to be used by States who have implemented or who will implement the SAE J1667 Snap-Acceleration Smoke Test Procedure for Heavy-Duty Diesel Powered Vehicles. SAE's proposal was accepted and an EPA Assistance Agreement #CX 825906-01-0 was established.

Under this agreement SAE and the EPA developed a list of key states providing excellent cross country representation, state organizations and industry organizations who would be the key stakeholders affected by any EPA Guidance documents relating to this area. SAE then developed, with input from the EPA, a comprehensive survey. The survey was distributed to all identified stakeholders. An excellent overall response to the survey of approximately 86% was received.

After compilation and review of the responses the following observations were made. Of the states that responded and are using a roadside testing program approximately 86% are using J1667. Of those states using J1667 83% are utilizing cutpoints of 40% for vehicles 1991 or newer and 55% for vehicles 1990 or older. Those states that are using higher cutpoints were found to be high altitude states. It was determined that when these higher cutpoints are corrected for altitude, they are in line with the 40/55% limits.

The original 40/55% limits were developed by the California Air Resources Board random in-use testing and their subsequent truck repair study. The 40/55% limits are based on an analysis of post repair high values for opacities after taking into account associated variability of the engine, the tests, and different meters that were used.

A subgroup of key stakeholders including representative states using J1667, states not using J1667, states using 40/55% cutpoints, states using other cutpoint limits, industry organizations, and state organizations was convened to discuss the results and obtain consensus.

Upon discussion and numerous conference calls the organizations such as EMA, ATA and NESCAUM strongly support the use of J1667 and 40/55% cutpoints. The states currently using J1667 support the 40/55% cutpoints once corrected for altitude and the states not using J1667 (in particular New Jersey) would agree to EPA Guidance in this area if it was understood J1667 does not have to be used exclusively.

The subgroup reiterated the fact that J1667 was designed to identify excessive smoke emitters. There was agreement that during the various pilot programs conducted, cutpoints at the 40/55% levels yielded very good results at screening gross polluters.

Based on the survey results and the discussions with the key stakeholders, this study recommends the following position to the EPA for their use in developing a Guidance Statement.

## **RECOMMENDATION**

**Utilize SAE J1667 Procedure for state operated in-use testing programs for highway heavy-duty diesel vehicles.**

**Utilize opacity cutpoints of:**

- **40% for vehicles 1991 or newer**
- **55% for vehicles 1990 or older**

**(It should be noted that the above are intended to be net cutpoints after correction for altitude, in fact all opacities should be corrected for all ambient test conditions by applying the SAE J1667 Appendix B “Corrections for Ambient Test Conditions” model)**

The recommended cutpoints are based on current technologies for HDDV engines. However, lower cutpoints might be appropriate in the future, as more advanced emission control technologies are developed. States such as California and New Jersey are looking at exploring more stringent cutpoints in later iterations of their programs.

# **BACKGROUND**

## **BACKGROUND**

There is a need for consistent measurement procedures for States to adopt in their in-use testing program related to smoke evaluations for highway heavy-duty diesel vehicles (HDDV). As part of its ongoing efforts to provide assistance to states regarding in-use testing programs and to promote uniformity with respect to smoke test procedures, EPA published a guidance (dated April 3, 1997) recommending the use of the SAE J1667 test procedure. The use of the SAE J1667 by States would bring uniformity to in-use smoke evaluations nationwide, with respect to inspections programs for HDDV.

EPA enlisted SAE to help determine appropriate smoke opacity cutpoints to be used by States who have implemented or will implement the SAE J1667 test procedure. The development of these cutpoints had to be accomplished with the consensus of the stakeholders which include: States, Trucking Industry, Manufacturers, State Organizations, Environmental Groups and the EPA.

The objectives of the SAE study were to:

- Identify and evaluate existing state-operated smoke testing programs and other pertinent in-use data on SAE J1667.
- Make a recommendation on the best smoke opacity cutpoints for the SAE J1667 test procedure. The recommendation would involve the stakeholders and an attempt at consensus support would be made.
- Publish a report to include descriptions of the current programs, results obtained, basis for recommendations, indication of support and final cutpoint recommendations.

## **DETAILS OF STUDY**

## **IDENTIFICATION OF STAKEHOLDERS**

## 1. **IDENTIFICATION OF STAKEHOLDERS**

Utilizing SAE and EPA background and contact databases a list of known stakeholders was compiled. Two lists were put together, one of key States and State Organizations and one of related organizations.

The following list was the result.

## STATES/STATE ORGANIZATIONS

NAME	ORGANIZATION	PHONE #	FAX #
Mark Klinger	Arizona Department of Environmental Quality	602-207-7013	602-207-7020
Dave Gourley	British Columbia AirCare	604-775-0097	604-775-0105
Don Chernick	California Air Resources Board (ARB)	916-322-7061	916-322-8274
Macie LaMotte/ Jerry Gallagher	Colorado Dept. of Public Health & Environment	303-692-3133 303-692-3128	303-782-5693
Tymon Lodder	Colorado Regional Air Quality Council	303-629-5450	303-629-5822
Shelton Edwards	Connecticut Dept. of Environmental Protection	860-424-3387	860-424-4063
David Maestrini	Connecticut Dept. of Motor Vehicles	860-566-3569	860-566-3716
Reginald Sanford	Florida Environmental Protection Commission	813-272-5530	813-272-5605
Darwin Burkhart	Illinois Dept. Of Air Quality Planning	217-524-4343	217-524-4710
John Welch	Indiana Dept. of Env. Management Air Programs	317-233-5677	317-233-2342
Harrison Smith	Maryland Dept. of the Environment	410-631-3272	410-631-4435
Hank Southworth	Massachusetts Dept. of Environmental Protection	617-292-5836	617-556-1049
Ed Glick	Nevada Division of Environmental Protection	702-687-4670	702-687-6396
Tony Iavarone/ Dave West	New Jersey Dept. of Environmental Protection	609-530-4064 609-530-4036	609-530-5342
Mike Klewin	New Jersey Dept. of Transportation-Motor Vehicles	609-633-9472	609-633-9366
Steve Flint/Ken Newkirk	New York Dept. of Environmental Conservation	518-485-8913	518-457-8831
Arthur Marin/Coralie Cooper/Jason Grumet	Northeastern States for Coordinated Air Use Management (NESCAUM)	617-367-8540	617-742-9162
Andrea Stevenson	Ohio Environmental Protection Agency	614-644-3059	614-644-3681
Dave Foerter	OTC	202-508-3840	202-508-3841
Thomas Barry	Rhode Island Office of Air Resources	401-277-2808	401-277-2017
Nancy Krueger	STAPPA-ALAPCO	202-624-7864	202-624-7863
Joe Thomas	Utah Dept. of Environmental Quality	801-536-4715	801-536-4099
Tom Moy	Vermont Dept. of Environmental Conservation	802-241-3819	802-241-2590
John Poffenroth	Washington Dept. of Ecology	509-456-3283	509-456-6175
John Raymond	Washington Dept. of Ecology, Air Quality Programs	360-407-6856	360-407-6802

## RELATED ORGANIZATIONS

<b>NAME</b>	<b>ORGANIZATION</b>	<b>PHONE #</b>	<b>FAX #</b>
Michael Block	EMA	312-644-6610	312-321-5111
Tim Carmichael	Coalition for Clean Air	310-441-1544	310-446-4362
Bill Gary	Owner/Operator Independent Driver Assoc.	202-342-8858	202-338-5534
Doug Greenhaus	American Truck Dealers	703-821-7040	703-448-5824
Roland Hwang	Union of Concerned Scientists	510-843-1872	510-843-3785
Antonio Santos	Manufacturers of Emission Controls Assoc.(MECA)	202-296-4797	202-331-1388
Allen Schaeffer	American Trucking Association (ATA)	703-838-1844	703-838-1992
Bill Staiger	Bosch	708-865-5374	708-786-3546
Chris Stevens/ Janet Hathaway	Natural Resources Defense Council-San Francisco	415-777-0220	415-495-5996
Jim Williams	American Petroleum Institute (API)	202-682-8155	202-682-8051
Stephanie Williams	California Trucking Association	916-373-3548	916-371-7346

# **SURVEY**

## 2. **SURVEY**

A comprehensive survey was developed, reviewed with the EPA, revised and refined.

The following was the final version distributed to all identified stakeholders on November 17, 1997.

# DIESEL TESTING SURVEY

<b>ORGANIZATION/STATE/AGENCY:</b>		
1.	Do you have a Diesel Testing Program?	
	In Place	Planned (please circle one)
		Neither
2.	Brief Description:	
3.	If in place when initiated:	
4.	If planned when will it commence:	
5.	Testing Frequency:	
6.	What procedures are/will be used?	
7.	What emission standards are/will be specified?	
8.	What vehicles are/will be tested?	
9.	Do you have enforcement regulations in place (please describe)?	

10. Please provide any testing results that may be available. Of interest would be any distribution summaries depicting dates, number of vehicles tested, models, models years, opacity readings, average opacities, reference standards, % not meeting reference standards, or any other pertinent summaries.
11. If the SAE J1667 test procedure is being used, have you collected any correlation results regarding comparison to other test procedures or to other pollutant levels (eg. Nitrogen oxides, particulate matter or hydrocarbons)?
12. If the SAE J1667 test procedure is being used, have you collected any correlation results regarding repeatability of vehicles or measuring equipment?
13. a) If you have set reference opacity cutpoints what was your rationale for these limits?
b) Do you have supporting data?
c) Supporting technical analysis?
14. Other Comments:

Contact Name

Address

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-mail

RETURN TO: Gary Pollak/Barbara Roth  
 SAE Cooperative Research Program  
 400 Commonwealth Drive  
 Warrendale, PA 15096-0001  
 Fax: 412-776-0243

It is requested you return your response by **MONDAY, DECEMBER 8, 1997.**

## **SURVEY RESPONSE**

### 3. **SURVEY RESPONSE**

The stakeholder list contained 18 key States and 3 State Organizations.

Continued follow-up by SAE resulted in survey responses from these States.

Arizona  
British Columbia  
California  
Colorado  
Connecticut  
Florida  
Illinois  
Maryland  
Massachusetts  
Nevada  
New Jersey  
New York  
Rhode Island  
Utah  
Vermont  
Washington

In addition these organizations responded:

**NESCAUM**  
(Northeast States for Coordinated Air Use Management)

**MECA**  
(Manufacturers of Emission Controls Association)

Response to this survey was extremely high. Responses were received from 16 of 18 states (89% response) and from 2 of 3 organizations (67% response).

Overall response rate: 86%

## **SURVEY RESPONSE SUMMARY**

#### **4. SURVEY RESPONSE SUMMARY**

The following table summarizes the key survey responses from the states.

## SAE DIESEL TESTING SURVEY RESPONSES

Survey: December 1997

Update: July, 1998

State	Program In-Place/Planned; Date	Does Program Use J1667 or Other Procedures?	What Vehicles Are Included?	Frequency of Inspection	Opacity CutPoints Being Used	Source
Arizona	Current program steady state loaded mode. New program J1667 for HD in Oct. 1998	Current program steady state loaded mode. New program J1667 for HD in Oct. 1998	All diesel > 90 cc	Annual	Cutpoints for J1667: 1991+ 40% 1990 - 55%	Survey
British Columbia	J1667; Sept. 1998	J1667; Sept. 1998	All diesel > 5000 kg GVWR	Random	1991+ 40% (suggest 25%) 1990 - 55%	Survey
California	Yes Roadside 1991 Fleet 1993	J1667	HDDV & HDGV over 6000 GVW	Fleet-annual Roadside-as needed	1991 + 40% 1990 - 55% - 69% fix it ticket > 69% fine	Survey
Colorado	Yes; 1987	HD LD Diesel lug down on dynamometer HD in fleet have option of on-road full throttle, full load J1667 not used	--	Annual	--	Survey
Connecticut	Yes; 1995 pilot; Spring 1998	J1667	HD	Random	1991+ 40% 1990 - 55% 1973 - 70% for 1st 5 years then 55%	Survey
Florida	No program	--	--	--	--	Survey

Illinois	State Rule	Use a snap idle test similar to J1667	Diesel Vehicles > 8,000 GVWR	--	1991+ 40% 1990 - 55%	Survey
Maryland	Pilot 1993 - March 1995	J1667	Vehicles over 26,000 lbs.	--	55% for all considering: 1991 + 40% 1990 - 1974 55% 1973 - 70%	Survey
Massachusetts	Planned; mid 1999	HD SAE J1667 LD dynamometer	HD LD	Biennial	1991 + 40% 1990 - 55%	Survey
Nevada	Yes; July 1, 1996	J1667	Diesels over 8500 GVW	Random	Fail at 70%	Survey
New Jersey	Planned	Rolling/stall accel. Pilot Program used J1667	> 18,000 GVWR	Annual	--	Survey
New York	No	Most likely would be J1667, if implemented	--	--	1991 + 40% 1990 - 55%	Survey
Rhode Island	Planned; 2000	J1667	LDDV, HDDV, Busses	Annual	LDDV 20% Busses 1988 + 30% 1987 - 40% HDDV 1991 + 40% 1974-1990 55% 1973 - 70%	Survey

Utah	In place; Nov. 1, 1994 LDDV - 1998	LDDV dynamometer HDDV J1667	All diesel 1968 or newer	--	Some counties: 80% HD or LD HD               70% LD w/turbo       30% LD w/o turbo      35% LD	Survey
Vermont	In place; Oct. 1996	SAE J1667 and Bosch RT100	HDDV > 8500 lbs GVWR	2-3 times/mo.	1991 + 40% 1990 - 55%	Survey
Washington	In place; August 1993	J1667 - considering dynamometer for LDDV	All diesel	Biennial: Private Annual: Govt.	1992 + 40% 1974 - 1991 60% 1968 - 1973 70%	Survey

## **INDIVIDUAL RESPONSES AND REPORTS**

## 5. **INDIVIDUAL RESPONSES**

See Appendix 1 for copies of all individual responses and submitted reports.

## **STAKEHOLDER CONSENSUS**

## 6. STAKEHOLDER CONSENSUS

After the results from the survey were tabulated and reviewed with the EPA it was decided a smaller group needed to be formed. The purpose of this group would be to discuss the results and discuss issues needed to be resolved in order to achieve consensus.

The following group was established:

	Study Coordinators:	SAE, EPA
	Key Organizations:	ATA, EMA, NESCAUM, STAPPA-ALAPCO
States	Key States using J1667 and 40/55% Cutpoints:	California, NESCAUM
	Key States using J1667 and other than 40/55% Cutpoints:	Nevada, Utah
	Key States not using J1667:	New Jersey, Colorado

## **CONFERENCE CALL I**

## **6.1 CONFERENCE CALL I**

A conference call meeting was convened on March 18, 1998 of the targeted consensus group.

The following reports the summary of this conference call meeting.

## SUMMARY

### EPA CUTPOINTS CONFERENCE CALL WEDNESDAY, MARCH 18, 1998

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PARTICIPANTS:	Gary Pollak	SAE	
	Connie Hurney	SAE	
	Ines Storhok	EPA	
	Joe Thomas	Utah Dept. of Environmental Control	
	Macie LaMotte	Colorado Dept. of Public Health	
	Allen Schaeffer	ATA	
	Nancy Krueger	STAPPA-ALAPCO	
	Ed Glick	Nevada Division of Environmental	
	Protection		
		Paul Jacobs	California EPA Air Resources Board
		Donald Chernich	California EPA Air Resources Board
		John Moore	California EPA Air Resources Board
		Michael Block	EMA
		Harry Diegel	Ford
		Fred ?	Caterpillar
		Coralie Cooper	NESCAUM
		David West	New Jersey Dept. of Env. Protection
	Tony Iavarone	New Jersey Dept. of Env. Protection	
	Ed Sienicki	Navistar	

## PURPOSE

- Rationale for States implementing a Diesel Testing Program
  - Why
  - Driving Forces
  - Benefits
- Reasons for using J1667 Vs. other Testing Methods
- Establishment of Cutpoints at 40-55% Vs. other limits
- Issues relating to:
  - Effectiveness of Programs
  - Benefits of Program
  - Desirability of Consistency

Gary Pollak from SAE discussed the summary of recently conducted survey.

- Survey included issues in Agenda. Sent to approximately 18 states and approximately 3 state organizations.
- Results – Completed surveys from approximately 15 states including Arizona, California, Colorado, Connecticut, Florida, Maryland, Massachusetts, Nevada, New Jersey, New York, Rhode Island, Utah, Vermont, Washington State, British Columbia.
- The majority of states with programs are using J1667 and cutpoints of 40-55%.
- Offered summary results of survey to anyone who called, faxed or E-mailed Gary Pollak or Connie Hurney at SAE requesting it.

Information contained in the survey results was for the most part up to date with the exception of New Jersey. New Jersey reported they conducted a pilot program using J1667 for roadside testing. However, they stated that a more comprehensive program was being planned using a dyno test.

Discussed that although Nevada and Utah seemed to be using higher opacity cutpoints as their limits, they actually are in line with 40-55% limits after altitude correction.

EMA proposed a goal for a draft federal guidance to have a National Program that utilizes J1667 for roadside testing with consistent opacity cutpoints.

General consensus to above statement using J1667 with 40-55% cutpoints. New Jersey, however, still has plans for more comprehensive testing using a dyno test.

NESCAUM reported they are close to an agreement which will include the use of J1667 and the 40-55% cutpoints.

SAE will draft a straw man position for circulation to all participants- target date mid-April with a conference call to follow in early May.

## **PROPOSED POSITION**

## **6.2 PROPOSED POSITION**

As a result of the general agreement of the consensus group, SAE was instructed to draft a proposed cutpoints position including background support leading to this position.

Following is the draft circulated to the consensus group. It includes:

- Background
- Proposed Position
- Support for this Position

# DRAFT

April 3, 1998

## HDDV IN-USE SMOKE TEST PROCEDURE

### BACKGROUND

The US EPA issued on April 3, 1997 a Guidance to States on In-Use Smoke Test Procedure for Highway Heavy-Duty Diesel Vehicles.

In this document the EPA recommends that uniformity in smoke test procedures is appropriate and recommends the use of SAE J1667 procedure for smoke evaluations in state operated in-use testing programs.

The need for consistency is important. The trucking industry is concerned that trucks which travel across the country may be subject to inspections in different states with different procedures. States using consistent procedures would have the advantage of being able to compare test results. Also, environmental benefits will be easier to monitor and quantify in regions that use the same test methods.

A goal to establish consistent opacity cutpoints used in conjunction with the above procedure is now being addressed by this proposal.

### PROPOSED POSITION

**Utilize SAE J1667 Procedure for state-operated in-use testing programs for highway heavy-duty diesel vehicles.**

**Utilize opacity cutpoints of:**

- **40% for vehicles 1991 or newer**
- **55% for vehicles 1990 or older**

**(It should be noted that the above are intended to be net cutpoints after correction for altitude)**

## **SUPPORT FOR THIS POSITION**

SAE conducted a survey of 18 states and 3 state organizations

Approximately 80% returned the survey. Included are Arizona, California, Colorado, Connecticut, Florida, Maryland, Massachusetts, Nevada, New Jersey, New York, Rhode Island, Utah, Vermont, Washington DC and British Columbia which give an excellent cross country representation. Of these states that have a roadside testing program, 85% are using J1667.

Of those states that use J1667, 83% are utilizing 40/55% cutpoints.

Those states that are using higher cutpoints are high altitude states. It was determined that when these higher cutpoints are corrected for altitude, they are in line with the 40-55% limits. This essentially brings all states using J1667 for roadside testing into agreement on 40-55% limits.

EMA and ATA have expressed strong support for a National roadside program using consistent cutpoints.

SAE conducted a conference call of a cross section of the survey respondents including those using J1667 and those not, as well as those using 40/55% cutpoints and those not. This conference call resulted in a general consensus to accept the proposed position. (Exception was New Jersey, whose program calls for tests other than J1667).

Participants in the conference call reiterated the fact that J1667 was designed to identify excessive smoke emitters. There was agreement that during the various pilot programs conducted, cutpoints at the 40/55% yielded good results at screening gross polluters. Vehicles either had modest opacities below the 40% or clearly exceeded the 55%, in some cases significantly.

NESCAUM has a set of Memorandum of Understandings (M.O.U.'s) which have been accepted and are very close to being signed. This set of M.O.U.'s contain and support the proposed position.

## **CONFERENCE CALL II**

### **6.3 CONFERENCE CALL II**

A conference call meeting was convened on May 14, 1998 of the targeted consensus group.

The following reports the summary of this conference call meeting.

## SUMMARY

### EPA CUTPOINTS CONFERENCE CALL THURSDAY, MAY 14, 1998

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Participants:	Ines Storhok	EPA
	Joe Thomas	Utah DEQ
	Paul Jacobs	California EPA
	Michael Block	EMA
	Coralie Cooper	NESCAUM
	David West	New Jersey EPA
	Tony Iavarone	New Jersey EPA
	Gary Pollak	SAE
	Connie Hurney	SAE

---

SAE had circulated a Draft Position dated April 3, 1998 utilizing SAE J1667 with opacity cutpoints of 40% for vehicles 1991 or newer and 55% for vehicles 1990 or older. (Net-after correction for altitude).

NESCAUM, EMA, California, Utah and EPA all supported the position. New Jersey can support the Position basically as long as it is understood J1667 does not have to be used exclusively.

A number of the organizations indicated they would submit their support in writing with a few comments to be considered. Some of these comments included the question of whether a third category of cutpoint should be used for vehicles older than 1973; provisions for exemption; accept position as is but incorporate a footnote to provide a placeholder for new vehicles possibly having a new yet to be established cutpoint.

All written support statements with comments will be submitted to SAE within two weeks.

SAE was requested to contact the participants not able to be part of this conference call.

*(Note: subsequent calls to ATA, Nevada and Colorado all resulted in support for the Position)*

Once all written support and comments are received, SAE will circulate and poll the group as to the need for one more conference call to finalize the recommended Position to the EPA.

## **BASIS FOR INITIAL CUTPOINT SELECTION**

#### **6.4 BASIS FOR INITIAL CUTPOINT SELECTION**

In 1996 and 1997 the California Air Resources Board conducted extensive testing. The first part of the test used SAE J1667 to profile random in-use opacity readings of over 1000 HDDVs. The second part of the test conducted a “truck repair study” to gauge the effectiveness of repairing engines to manufacturing specifications in lowering snap acceleration smoke emissions. Over 70 vehicles underwent this repair.

After an analysis of the effect of repair and taking into account the associated variability of the engine, the test and the different meters used, the post repair high values for opacity cutpoints were established at 55% for pre 1991 vehicles and 40% for 1991 or newer.

A number of states conducted their own pilot programs and studies utilizing these cutpoints. The NESCAUM states kept statistics that showed that by utilizing these cutpoints approximately 84% of the vehicles would be in compliance. Although each state kept statistics in slightly different manners this same finding of approximately 15% failure rate was similar in many of the programs.

## **CONSENSUS CONCLUSIONS**

## 6.5 CONSENSUS CONCLUSIONS

As a result of conference calls I and II and follow-up by SAE the following outlines the consensus agreement obtained:

Conference Call I: General agreement by all but a request for a written position.

*Written Position circulated on April 3, 1998 (see Sec. 6.2)*

Conference Call II: Agreement and support for the Proposed Position was stated by:

- EPA
- EMA
- NESCAUM
- California
- Utah
- New Jersey

(provided it is understood J1667 does not have to be used exclusively)

Follow up by SAE: Agreement and support for the proposed Position was received via telephone calls placed to:

- ATA
- Nevada
- Colorado

Written Support: Written statements of support were received by: (see attachment 6.5)

- ATA
- EMA
- NESCAUM

NESCAUM whose participating states include Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont is developing a Reciprocity Agreement Workplan which will set cutpoints for use with those states using SAE J1667 at 40% for model year engines 1991 and newer and 55% for model year engines 1990 and older.

NESCAUM is also considering a 70% cutpoint for vehicles 1973 and older. This is not that significant in the fact that data from several states indicate only 2% to 4% of the vehicles are 1973 or older. Further, only about 40% of this already small number would exceed the 70% cutpoint. Thus choosing this additional less stringent cutpoint may have little air quality effect.

# AMERICAN TRUCKING ASSOCIATIONS



2200 Mill Road • Alexandria, VA 22314-4677

**Allen R. Schaeffer**  
Vice President  
Environmental Affairs

(703) 838-1844  
Fax: (703) 838-1992  
Aschaeff@trucking.org

May 19, 1998

Mr. Gary Pollak  
SAE Cooperative Research Program  
400 Commonwealth Drive  
Warrendale, PA 15096-0001

Dear Gary:

I just wanted to confirm that ATA supports the cutpoints for smoke opacity that the SAE Cooperative Research Program has been discussing. The cutpoints are 40% for 1991 and later model years and 55% for pre-1991 model year engines, when measured using the J-1667 standard.

Sincerely,



Allen R. Schaeffer

---

2200 Mill Road • Alexandria, VA 22314-4677



401 North Michigan Avenue  
Chicago, Illinois 60611-4267  
312/644-6610  
fax: 312/321-5111

Thursday, July 2, 1998

Gary Pollak  
SAE Cooperative Research Program  
400 Commonwealth Drive  
Warrendale, PA 15096-0001

Dear Gary,

This letter confirms that the Engine Manufacturers Association (EMA) supports the opacity cutpoints recommended by the SAE Cooperative Research Program in their April 3, 1998 draft entitled "HDDV In-Use Smoke Test Procedure". Those cutpoints – 40% for vehicles 1991 or newer and 55% for vehicles 1990 and older – are the appropriate opacity cutpoints, when used with the SAE J1667 Test Procedure, for federal guidance for inspection/maintenance (I/M) programs,

Sincerely,

A handwritten signature in black ink, appearing to read "M.C. Block", with a stylized flourish at the end.

Michael C. Block,  
Technical Director,  
Engine Manufacturers Association

cc.: Ines Štorhok - EPA



**NESCAUM**  
**Northeast States for Coordinated Air Use Management**

Connecticut Bureau of Air Management  
Maine Bureau of Air Quality Control  
Massachusetts Division of Air Quality Control  
New Hampshire Air Resources Division

New Jersey Office of Air Quality Management  
New York Division of Air Resources  
Rhode Island Office of Air Resources  
Vermont Air Pollution Control Division

July 20, 1998

Mr. Gary Pollak  
SAE Cooperative Research Program  
400 Commonwealth Drive  
Warrendale, PA 15096-0001

Dear Gary:

The Northeast States for Coordinated Air Use Management (NESCAUM) is writing to express support for the United States Environmental Protection Agency (U.S. EPA) effort to establish guidance for smoke opacity testing of heavy-duty diesel highway vehicles. This guidance will assist states in crafting smoke opacity enforcement programs to reduce smoke emissions from this source.

Specifically, NESCAUM supports the establishment of the proposed smoke opacity testing standards which are: 40% for 1991 and newer heavy-duty diesel vehicles and 55% for 1990 and older vehicles. These standards when enforced by states will reduce gross smoke emissions from in-use heavy-duty diesel vehicles.

We encourage your continued efforts to establish national guidelines for smoke opacity testing.

Very truly yours,

Coralie Cooper  
Mobile Source Analyst

# APPENDIX

## **APPENDIX**

The appendix contains the hard copies of the original responses and supporting documentation for these responses to the survey contained in Section 2 of this report.

These copies of the survey responses are from the states and organizations listed in Section 3 of this report. The summary of these responses is contained in Section 4 of this report.

As a result of the volume of pages and the hand written form of these responses, this appendix is not included in the report but will be kept on file at either:

SAE International  
400 Commonwealth Drive  
Warrendale, PA 15096-0001  
Attn: Gary W. Pollak

or

US Environmental Protection Agency  
National Vehicle & Fuel Emissions Lab  
52565 Plymouth Road  
Ann Arbor, MI 48105  
Attn: Ines Storhok

